

**In the Specification:**

Paragraph numbers indicated herein below reflect those listed in published United States Patent Application No.2004-0142367, which corresponds to the instant application.

Accordingly, please amend the Specification as follows:

[0004] Breast cancer is the most frequently diagnosed non-skin cancer among women in the United States. It is second only to lung cancer in cancer-related deaths. In the UK, breast cancer is by far the commonest cancer in women, with 34,600 new cases in 1998 (Cancer Research Campaign, <http://www.crc.org.uk>, UK, 2000). Ninety-nine percent of breast cancers occur in women. The risk of developing breast cancer steadily increases with age; the lifetime risk of developing breast cancer is estimated to be 1 in 8 for women in the US. The annual cost of breast cancer treatment in the United States is approximately \$10 billion (Fuqua, et. al. 2000, American Association for Cancer Research, [www.aacr.org](http://www.aacr.org), USA). Breast cancer incidence has been rising over the past five decades, but recently it has slowed. This may reflect a period of earlier detection of breast cancers by mammography. A number of established factors can increase a woman's risk of having the disease. These include older age, history of prior breast cancer, significant radiation exposure, strong family history of breast cancer, upper socioeconomic class, nulliparity, early menarche, late menopause, or age at first pregnancy greater than 30 years. Prolonged use of oral contraceptives earlier in life appears to increase risk slightly. Prolonged postmenopausal oestrogen replacement increases the risk 20 to 40%. It has been speculated that a decrease in the age at menarche, changing birth patterns, or a rise in the use of exogenous estrogens has contributed to the increase in breast cancer incidence (Fuqua, et. al. 2000, American Association for Cancer Research, [www.aacr.org](http://www.aacr.org), USA).

[0006] Breast cancer is a heterogeneous disease. Although female hormones play a significant role in driving the origin and evolution of many breast tumours, there are a number of other recognised and unknown factors involved. Perturbations in oncogenes identified include amplification of the HER-2 and the epidermal growth factor receptor

genes, and over-expression of cyclin D1. Over-expression of these oncogenes has been associated with a significantly poorer prognosis. Similarly, genetic alterations or the loss of tumour suppressor genes, such as the p53 gene, have been well documented in breast cancer and are also associated with a poorer prognosis. Researchers have identified two genes, called BRCA1 and BRCA2, which are predictive of pre-menopausal familial breast cancer. Genetic risk assessment is now possible, which may enhance the identification of candidates for chemoprevention trials (Fuqua, et al. 2000, American Association for Cancer Research, [www.aacr.org](http://www.aacr.org), USA).

[0008] Early diagnosis of breast cancer is vital to secure the most favourable outcome for treatment. Many countries with advanced healthcare systems have instituted screening programs for breast cancer. This typically takes the form of regular x-ray of the breast (mammography) during the 50-60 year old age interval where greatest benefit for this intervention has been shown. Some authorities have advocated the extension of such programs beyond 60 and to the 40-49 age group. Health authorities in many countries have also promoted the importance of regular breast self-examination by women. Abnormalities detected during these screening procedures and cases presenting as symptomatic would typically be confirmed by aspiration cytology, core needle biopsy with a stereotactic or ultrasound technique for nonpalpable lesions, or incisional or excisional biopsy. At the same time other information relevant to treatment options and prognosis, such as oestrogen (ER) and progesterone receptor (PR) status would typically be determined (National Cancer Institute, USA, 2000, Breast Cancer PDQ; [www.ncl.org](http://www.ncl.org)).

[0014] BCMP 101 was identified and cloned from MDA-MB468 breast cancer cell membranes. Expression of BCMP 101 in normal human tissue showed that the highest levels of expression were found in mammary, kidney and bladder tissue. Expression of BCMP 101 was elevated in kidney cancer cell lines in comparison to normal tissues. Furthermore, elevated levels of BCMP 101 gene expression were also observed in tumour tissue from a set of seven matched normal and tumour samples from breast cancer patients. The BCMP 101 sequence (FIG. 1, SEQ ID NO: 1) matches GenBank entry

(~~available at: <http://www.ncbi.nlm.nih.gov/>~~): CAD 10629--NSE2 protein [Homo sapiens]--a novel NS-containing protein), which was published after the priority date of this application.

[0211] Using the SEQUEST search program (Eng et al., 1994, J. Am. Soc. Mass Spectrom. 5:976-989), uninterpreted tandem mass spectra of tryptic digest peptides were searched against a database of public domain proteins constructed of protein entries in the non-redundant database held by the National Centre for Biotechnology Information (NCBI) ~~which is accessible at <http://www.ncbi.nlm.nih.gov/>~~ and also constructed of Expressed Sequence Tags entries (~~<http://www.ncbi.nlm.nih.gov/dbEST/index.html>~~). As a result of database searching, the following amino acid sequence of a tryptic digest peptide of BCMP 101 was determined from a match to a tryptic digest peptide in a conceptual translation of EST A1472043: NSESFAAWCR (SEQ ID NO: 3, shown in FIG. 1).

[0219] The BCMP 101 sequence (FIG. 1, SEQ ID NO: 1) matches the following GenBank entry (~~available at: <http://www.ncbi.nlm.nih.gov/>~~): CAD10629-NSE2 protein [Homo sapiens]-A novel NS-containing protein (released 24/10/2001)).

[0227] A Blast search (~~<http://www.ncbi.nlm.nih.gov/BLAST/>~~) with the BCMP 101 cDNA sequence (FIG. 1) against htgs (High-Throughput Genome Sequences), returns the following GenBank clone: AC021396, mapped to chromosome 8q23.

[0229] A subsequent Blast search of the human genome (~~<http://www.ensembl.org/>~~) with the BCMP 101 cDNA sequence maps the gene to GenBank clone AC021396 on chromosome 8, band q24.21.

[0239] Immunohistochemical analysis was carried out on frozen sections of a breast tumour (from Peterborough Tissue Bank, ref. No 6574-Human Research Tissue Bank, Department of Cellular Pathology, Peterborough District Hospital, Thorpe Road, Peterborough PE3 6DA-~~<http://www.tissuebank.co.uk/>~~).